

Appl. No. 10/027,992

Amendments to the Claims

Claims 1-9 (Cancelled)

10. (Amended) A method of making a sputtering target assembly comprising:
- a) providing high purity copper target of at least about 99.999 wt.% purity;
 - b) preparing a master alloy comprising copper and not more than about 10 ppm of at least one of Ag, Sn, Te, In, Mg, B, Bi, Sb, and P;
 - c) preparing a cast billet by forming a molten combination of copper and master alloy and solidifying the molten combination;
 - d) deforming the cast billet for a total of at least about 50% deformation on each axis and then rapidly quenching the deformed billet;
 - e) frictionless forging the quenched billet at elevated temperature to about 70% of the starting length of the billet, and rapidly quenching;
 - f) cold rolling to a total of about 90% deformation;
 - g) providing an aluminum alloy backing plate having a preclad CuCr surface; and precipitation hardening the aluminum alloy backing plate.

11. (Original) A method according to claim 10 wherein the preparing said master alloy comprises:

- forming a combination by combining the high purity copper with the at least one of Ag, Sn, Ti, In, Mg, B, Bi, Sb, and P;
- melting the combination; and
- casting the combination.

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12. (Original) A method according to claim 11 wherein the high purity copper is combined with the at least one of Ag, Sn, Ti, In, Mg, B, Bi, Sb, and P in a ratio of about 1000 to 1.

13. (Original) A method according to claim 10 further comprising:
forming the aluminum alloy backing plate wherein the forming comprises:
 embedding an alloy of Cu and Cr in an aluminum or aluminum alloy envelope;
 welding the envelope closed in a vacuum environment;
 heat treating the enclosed envelope;
 forging, wherein the forging brings the CuCr into intimate contact with the aluminum alloy to be used as a backing plate;
 quenching;
 removing the aluminum alloy envelope to expose the CuCr surface; and
 precipitation hardening the aluminum alloy.

Claims 14-17 (Cancelled)

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18. (Currently amended) A method of forming a sputtering target comprising:
forming a master alloy comprising:
a first high purity copper material; and
a micro-alloy grain stabilizer comprising ~~at least one of Ag, Sn,~~
~~Te, In, Mg, B, Bi, Sb, and P~~ dispersed within the first high
purity copper material;
adding an amount of the master alloy to a second high purity copper
material to form a sputtering target composition having a desired
concentration of the micro-alloy grain stabilizer dispersed within
copper; and
shaping the sputtering target composition into a target
configuration.
19. (Original) The method of claim 18 wherein the forming the master
alloy comprises combining the first high purity copper material with the micro-
alloy grain stabilizer in a ratio of at least about 1000 parts copper to 1 part of the
micro-alloy grain stabilizer.
20. (Original) The method of claim 18 wherein the first and second
high purity copper materials have a purities of at least about 99.999 wt.%.
21. (Original) The method of claim 18 wherein the first and second
high purity copper materials have a purities of at least about 99.9995 wt.%.

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22. (Currently amended) The method of claim 18 wherein the micro-alloy grain stabilizer ~~is~~ consists essentially of silver.

23. (New) The method of claim 18 wherein the a micro-alloy grain stabilizer additionally comprises one or more of Sn, Te, In, Mg, B, Bi, Sb, and P dispersed within the first high purity copper material.